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PERFORMANCE OF PINEAPPLE (*Ananas comosus* L. MERRIL. VAR. SMOOTH CAYENNE) AS INFLUENCED BY TILLAGE SYSTEM AND SUCKER SIZE

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ABSTRACT

Optimizing pineapple production through proper agronomic practices, particularly by understanding the impact of tillage systems and sucker size, is crucial for efficient and productive cultivation. This study was conducted to validate the effects of sucker size on growth and yield of smooth cayenne pineapple under two tillage systems. A field experiment was conducted at the Teaching and Research Farm, Ajayi Crowther University, Oyo. It was a 2 x 3 factorial, arranged in Randomized Complete Block Design (RCBD) with three replicates. Conventional tillage- T1 and Reduced tillage -T2 was the main factor while three classes of sucker size (S1 = Small (50-200 g); S2 = Medium (201-400 g) and S3 = Big (≥ 401 g) was the sub plot factor. Data collected were subjected to analysis of variance (ANOVA) using statistical software (SAS) and means separation using (DMRT) at 5% probability. There were significant differences in pineapple growth and yield attributes between the two tillage methods and among the three sucker sizes. Conventional tillage system was significantly superior in terms of pineapple plant height (65.92 cm), numbers of leaves (29.57), D-leaf width (3.18 cm), leaf area (103.43 cm^2) and fruit yield (32.98 t/ha) while reduced tillage system was the least. Big sucker (≥400 g) was superior and best in terms of pineapple plant height (78.66 cm), number of leaves (39.56), D-leaf length (64.09 cm), D-leaf width (3.42), leaf area (132.26 cm^2) and fruit yield (53.66 t/ha), followed by the medium sucker while small sucker was the least. Conclusively, Conventional tillage practice, specifically constructing beds, is the most effective method for land preparation to improve pineapple growth and yield while big suckers ≥401 g are most suitable for planting pineapple, leading to good growth and optimal yield.

Key words: Conventional tillage, reduced tillage, leaf area, D-leaf length, D-leaf width

INTRODUCTION

Pineapple is one of the common horticultural crops and third among the most consumed tropical fruits in the world, following bananas and mangoes (Shahbandeh, 2024). It is a tropical fruit widely cultivated in South America, precisely South Brazil and Prague where the original species can be found (Tewodros *et al.,* 2018). The contribution of pineapple to the world's production of tropical fruits was approximately 29.36 million metric tons (FAOSAT, 2024). It is a vital source of bromelain, a digestive enzyme that contains anti- oxidant and anti- inflammatory properties, minerals and vitamins that offer several health benefits (Maimunah

et al., 2020). It plays a vital role in the digestive system, maintaining weight and balancing nutrition (Chaudhary *et al.,* 2020).
Tillage is one of the key aspects of agronomy that affects both soil and crops' properties. Tillage provides the right conditions for growth of seedlings, germination of seeds, and the best possible crop yields (Vetsch *et al.,* 2002). Conventional tillage results to a finer and loose-setting soil structure while reduced tillage employs a broad set of practices with a goal retaining some crop residue on the soil's surface to increase water infiltration and reduced erosion (Reicosky, 2015). The choice of appropriate tillage system is crucial for sustainable farming in sub– tropical ecosystems. Pineapple is mainly propagated vegetatively using stem suckers, peduncle slips or fruit crowns of healthy and productive plants (Olayinka, 2013). The sucker is the buds at the axils of leaves that will elongate to form lateral branches (Carr, 2014). It is a shoot that emerges from the base of matured pineapple plant near the soil level. Slips are the shoots produced on the peduncle at the base of the fruits while crowns are usually produced at the top of the fruits (Hepton, 2003). These planting materials differently affect growth, yield and period of pineapple maturity (Fassinou *et al*., 2015) and should be properly selected by size to achieve crop uniformity and better yield (Olayinka, 2013). Given these circumstances, this study attempted to bridge the information gap with respect to the influence of tillage practices and sucker size on the performance of pineapple. Thus, the objective of this study was to investigate the effects of tillage system and sucker size on growth and yield performance of smooth cayenne pineapple.

MATERIALS AND METHODS

Experimental Site

The study was conducted between 2021 and 2024 at the Teaching and Research Farm, Ajayi Crowther University, Oyo, Nigeria which lies between latitude 7° 52' N and longitude 3° 59' E. The area has a bimodal rainfall with mean annual rainfall of 1367 mm and average number of rainy days of about 112 per annum. Temperature is almost uniform throughout the year, with little deviation from mean annual of 27°C. February and March are the hottest months, with mean temperature of 28 and 27°C respectively. The area falls within the derived savanna. The region has a tropical humid climate with distinct wet and dry seasons. The wet season is from early April to late August with little dry season in September. The soil type of the experimental field was moderately acidic (pH 5.7) and sandy loam in texture. The grass species present included guinea grass (*Panicum maximum*) and Star grass (*Cynodon niemfuensis*).Broad leaves included Siam weed (*Chromolaena odorata*) and Water leaf (*Talinum fruticosum*). The topographical nature of the site was undulating to level plain. The experimental field had been cropped with cassava without fertilizer for two years before setting up this experiment.

Experimental Design and Treatments

The experiment was a 2 x 3 factorial arranged in Randomized Complete Block Design with three replications Tillage practice was the main factor: Conventional tillage (T1) and Reduced tillage (T2) while sucker size; (S1 = Small (50-200 g); S2 = Medium (201-400 g) and S3 = Big (≥401 g) was the sub plot factor.

Field preparation and management

The experimental site was well prepared and marked out. The portion meant for conventional tillage was ploughed twice and constructed to beds while the manually slashed land portion without beds was for reduced tillage. Suckers were planted in double rows with planting spacing of 60 cm x 60 cm within and between the rows, and 100 cm between double rows. Each plot was 6m by 3m (18 m^2) containing 48 stands/ plot, 18 plots and 864 plant / experimental field. Compost was applied at 6 tons/ha^{-1}, at planting to allow for proper nutrient mineralization of compost before the crop establishment while NPK 15-15-15 was applied at 800kg/ha^{-1}, a month after planting. Flower induction was carried out using 1.25 ml ethephon (2-chloro ethyl phosphonic acid), 1 kg urea and 20 g calcium carbonate made up to 50 litres with water. 50 ml of the solution applied into the heart of pineapple plant at 16 months after planting. The fruits were harvested when one-third of all the fruits in a plot were ripe, which was achieved at 155 days after induction.

Data Collection

Six (6) centrally located pineapple plants per plot were randomly selected within the net plot for data collection on growth and yield parameters. Growth parameters such as plant height, number of leaves, D- leaf (centrally positioned longest leaf of pineapple plant) length, D-leaf width and leaf area (measured by length-width linear equation method, **LA = 0.68 x L × W**) were measured at 3, 6, 9, 12 and 15 months after planting (Olayinka, 2013) while those of yield were measured at 5 months after flower induction.

Statistical Analysis

Data collected were subjected to Analysis of variance (ANOVA) using statistical software (SAS). Treatments means were compared using Duncan's Multiple Range Test (DMRT) at 5% level of probability.

RESULTS

The physical and chemical characteristics of the soil showed that sand, silt and clay contents were 12.9, 86.07, and 1.37 % indicating loamy sand using the textural classes (Table 1). The soil of the experimental site was also characterized by low level of organic carbon (9.86 %) and total Nitrogen (0.11%). The pH was slightly acidic (5.77) which is conducive for pineapple production. Exchangeable Calcium (Ca) was 0.34 cmol/kg and Magnesium was 0.24 cmol/kg. The organic matter content of the soil was 16.99 %. The exchangeable cations indicated low K^+ with 0.70 cmol/kg and Na^{+2} 0.53 cmol/kg. The percentage

Table 1: Physico-chemical characteristics of the soil of the experimental site

Soil properties	
pH	5.77
Na (Unit)	0.53
K “	0.70
Ca “	0.34
H+ “	0.121
Mg (cmol.kg^{-1})	1.34
Av = P.M?? mg.kg-1	6.78
Organic Carbon (%)	9.86
Organic Matter (%)	16.99
Total Nitrogen (%)	0.11
CEC	3.02
Base Saturation (%)	95.97
Sand (%)	12.9
Silt (%)	86.07
Clay (%)	1.37

Effect of tillage system and sucker size on plant height of smooth cayenne pineapple

Pineapple plant heights (47.95 and 53.52 cm) respectively, at 3 and 6 MAP measured under conventional tillage system were not significantly different from the plant heights (49.31 and 51.92 cm) recorded under reduced tillage system. However, at 9, 12 and 15 MAP, pineapple plant heights (60.29, 62.75 and 65.92 cm, respectively) under conventional tillage system were higher than plant heights (56.38, 58.82 and 62.87 cm, respectively) obtained under reduced tillage system (Table 2)., There were significant differences among plant heights of pineapple measured from different categories of sucker sizes throughout the periods of observation (Table 2). Average plant heights ranging between 60.20 and 78.66 cm, 47.65 – 64.26 cm and 38.04 – 50.26 cm were recorded when pineapple was established with big, medium and small sucker sizes, respectively. At 15 MAP**,** the big sucker size produced the tallest plants (78.66 cm) which were taller than plants from medium sucker (64.26 cm) while plants from small sucker had the shortest plants (50.26 cm).

Table 2: Main effect of tillage and sucker size and their interactions on plant height of Smooth cayenne pineapple

	Plant Height (cm)				
Treatments	3	6	9	12	15
	Months after planting (MAP)				
Tillage system					
T1	47.95[a]	53.52[a]	60.29[a]	62.75[a]	65.92[a]
T2	49.31[a]	51.92[a]	56.38[b]	58.82[b]	62.87[b]
Sucker size					
S1	38.04[c]	41.41[c]	45.55[c]	47.50[c]	50.26[c]
S2	47.65[b]	50.66[b]	57.34[b]	59.78[b]	64.26[b]
S3	60.20[a]	66.08[a]	72.12[a]	75.08[a]	78.66[a]
TS X SS	Ns	Ns	Ns	Ns	Ns

Means with the same superscripts along the column are not significantly different at $P < 0.05$ using Duncan's Multiple Range Test (DMRT).
T1 = Conventional tillage; T2 = Reduced tillage;
S1 = Small sucker; S2 = Medium sucker; S3 = Big sucker.

Effect of tillage system and sucker size on number of leaves of smooth cayenne pineapple

The highest number of leaves (30) of pineapple plant recorded under conventional tillage system was not significantly different but having an increase of 19% over the lowest (27) number of leaves of pineapple measured under reduced tillage system at 15 MAP (Table 3). There were however, significant differences among the number of leaves of pineapple produced by the three classes of suckers. At 3 and 6 MAP, number of leaves produced by big sucker increased from 28.94 to 37.11 while at 9 MAP it decreased. However, at 12 and 15 MAP, it increased from 37 to 40. Similar observation was made in number of leaves produced by medium and small suckers at 3, 6, 9, 12 and 15 MAP. At 15 MAP, big sucker produced the highest number of leaves (39.56) which differed significantly from 27 leaves produced by the medium sucker. The least of 19 leaves/plant was from small sucker (Table 3).

Table 3: Main effects of tillage and sucker size and their interactions on number of leaves of smooth cayenne pineapple

	Number of Leaves				
Treatments	3	6	9	12	15
			Month after planting		
Tillage system					
T1	22.29[a]	28.66[a]	31.11[a]	26.98[a]	29.57[a]
T2	21.58[a]	26.96[a]	27.04[a]	25.27[a]	27.43[a]
Sucker size					
S1	16.21[c]	20.01[c]	19.23[c]	16.91[c]	18.87[c]
S2	20.65[b]	26.31[b]	25.32[b]	24.24[b]	27.07[b]
S3	28.94[a]	37.11[a]	36.66[a]	37.23[a]	39.56[a]
TS X SS	Ns	Ns	Ns	Ns	*

Means with the same superscripts along the column are not significantly different at $P < 0.05$ using Duncan's Multiple Range Test (DMRT).

T1 = Conventional tillage; T2 = Reduced tillage; S1 = Small sucker; S2 = Medium sucker; S3 = Big sucker

Interactive effects of Sucker size and Tillage system on number of leaves

. There were significant differences among the number of leaves of pineapple produced by the three classes of suckers under the two systems of tillage at 15 MAP (Figure 1). Big suckers under the conventional tillage had about 45 leaves/plant that was higher than 35 leaves/plant from the big suckers grown under reduced tillage. However, medium suckers grown under reduced tillage produced 28 leaves/plant which were not significantly different from 26 leaves from the medium suckers grown under conventional tillage. The least of 19 leaves was produced by small suckers grown under conventional tillage which was the same as those produced by small suckers under reduced tillage (Figure 1).

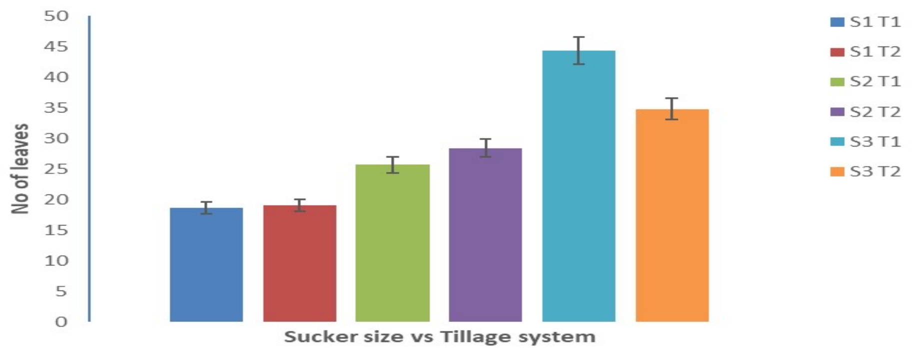

Fig. 1: Interactive effect of Sucker size and Tillage system on number of leaves of Smooth cayenne pineapple at 15 MAP

Treatments effect on D- leaf length of smooth cayenne pineapple

D- Leaf length (44.76 cm) occasioned by reduced tillage system was significantly longer than D- leaf length (41.51 cm) of pineapple under conventional tillage system at 6 MAP (Figure 2a). However, D- leaf lengths recorded under the conventional tillage system were not significantly different but higher, from pineapple D- leaf lengths measured under reduced tillage system at 3, 9, 12 and 15 MAP. Average D-leaf lengths increased from 3 – 15 MAP and ranged between 52.50 – 64.09 cm, 42.96 – 52.99 cm and 33.94 – 42.15 cm, respectively for big, medium and small suckers. The big sucker that produced the longest D- leaf length (64.09 cm) was significantly different with an increase of 17.3% and 34.2% over those of medium (52.99 cm) and small suckers (42.15 cm), respectively at 15 MAP (Figure 2b).

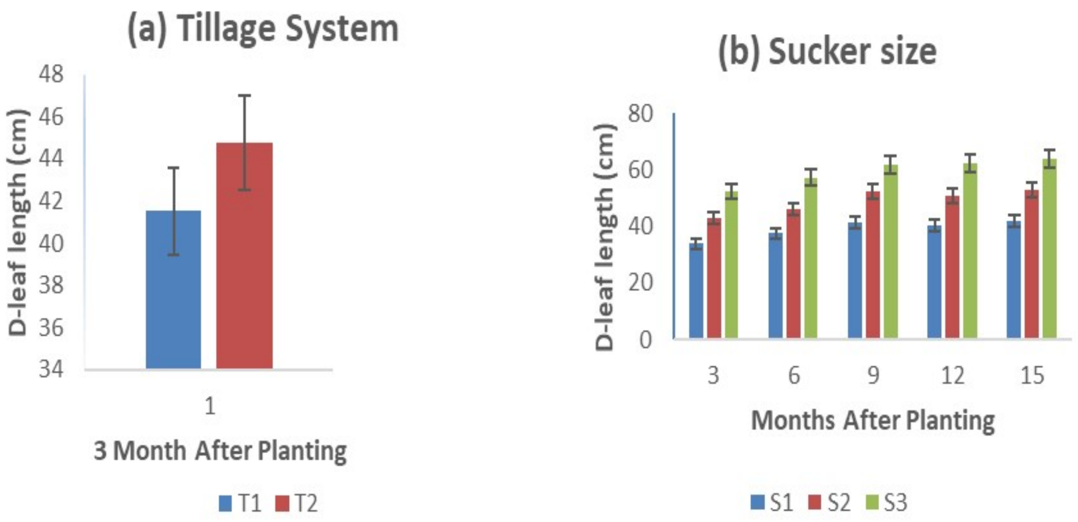

Fig. 2: Main effects of: (a) Tillage system and (b) Sucker size on D- leaf length of pineapple

Interactive effects of sucker size and tillage system on D- leaf length of pineapple

There were no significant differences among D- leaf lengths of pineapple produced by three classes of suckers under two systems of tillage during the period of observation except at 9 MAP. Big sucker under conventional tillage gave the longest D- leaf length (64.24 cm) while small sucker under conventional tillage was the shortest of 41.09 cm (Figure 3)

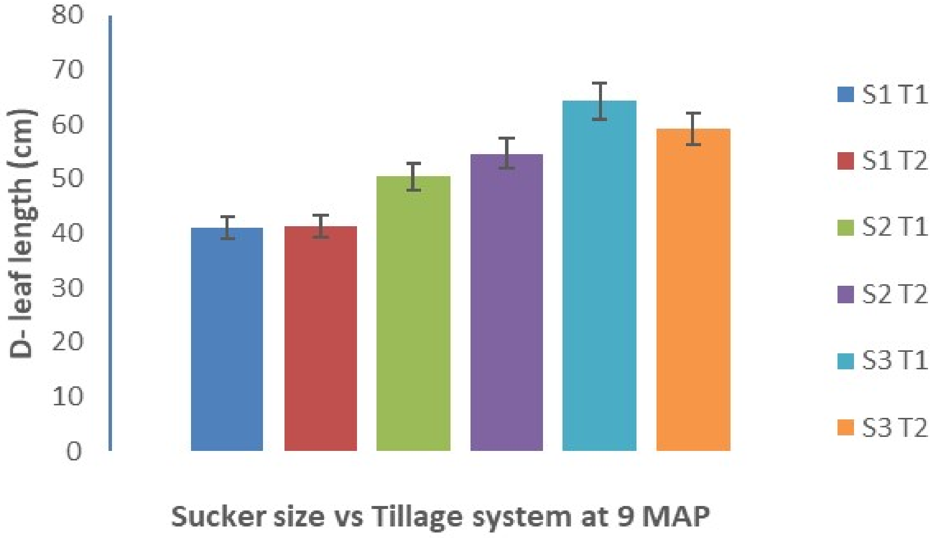

Fig. 3: Interactive effects of sucker size and tillage system on D- leaf length of pineapple at 9 MAP

Effect of tillage system and sucker size on D- leaf width of smooth cayenne pineapple

The D- leaf widths measured under conventional and reduced tillage system in all the periods of observation differs significantly (Table 4). Plants under conventional tillage system gave the longest D-leaf widths which ranged from 2.74 – 3.18 cm and were different higher/lower? than from those under reduced tillage system which ranged from 2.61 – 2.96 cm at 3, 6, 9, 12 and 15 MAP. Similarly, there were significant differences among D-leaf widths of pineapple plants from different sizes of sucker. Average D- leaf widths increased from 3 to 15 MAP and ranged from 2.81 - 3.47 cm, 2.68 - 3.02 cm and 2.40 - 2.72 cm for big, medium and small suckers, respectively. At 15 MAP, plants from big suckers gave the longest D-leaf width (3.37 cm) which differs statistically from plants from medium (3.02 cm) and small suckers (2.72 cm) which was the shortest (Table 4).

Table 4: Main effects of tillage and sucker size and their interactions on D- leaf widths of smooth cayenne pineapple

	D- leaf widths				
Treatments	3	6	9	12	15
	Months After Planting				
Tillage system					
T1	2.74[a]	2.76[a]	2.78[a]	2.85[a]	3.18[a]
T2	2.61[b]	2.65[b]	2.69[b]	2.77[b]	2.96[b]
Sucker size					
S1	2 40[c]	2.49[c]	2.51[c]	2.63[c]	2.72[c]
S2	2 68[b]	2.61[b]	2.65[b]	2.80[b]	3.02[b]
S3	2.81[a]	2.98[a]	3.00[a]	3.01[a]	3.47[a]
TS X SS	Ns	Ns	Ns	Ns	*

Means with the same superscripts along the column are not significantly different at $P < 0.05$
using Duncan's Multiple Range Test (DMRT).
T1 = Conventional tillage; T2 = Reduced tillage;
S1 = Small sucker; S2 = Medium sucker; S3 = Big sucker

Interaction effect of sucker size and tillage system on D- leaf width of pineapple

Big sucker under conventional tillage produced plants with widest D- leaf width (3.67 cm) which was significantly higher from plants from big suckers grown under reduced tillage (3.28 cm). This was followed by medium sucker under conventional tillage (3.09 cm) which was also significantly higher than medium sucker under reduced tillage (2.95 cm) while small sucker under reduced tillage (2.65 cm) which was not significantly different from that under conventional tillage (2.65 cm) that was the shortest (Figure 4).

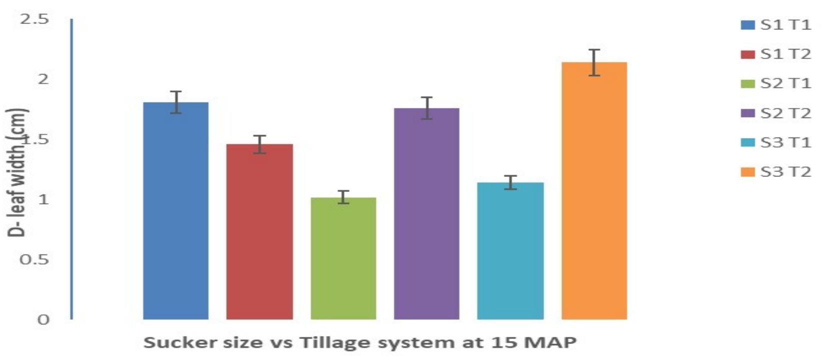

Fig. 4: Interactive effects of sucker size and tillage system on D- leaf width of pineapple at 15 MAP

Effect of tillage system and sucker size on leaf area of smooth cayenne pineapple

leaf area of pineapple plants under conventional tillage system which ranged from 82.28 – 103.43 cm^2 was higher but not significantly different from the leaf area of pineapple plants from reduced tillage system which ranged from 78.92 – 98.64 cm^2 at 3, 6, 9, 12 and 15 MAP (Table 5). There were significant differences among the leaf area of pineapple plants measured various sizes of suckers at every month of observation. Leaf areas which ranged from 57.71 – 69.92 cm^2, 76.84 – 95.43 cm^2 and 107.26 – 136.26 cm^2 were observed for small suckers, medium and big suckers, respectively. The big sucker produced plants with the largest leaf area (136.62cm^2) which was significantly different with an increase of 30% and 49% over those of medium and small suckers respectively at 15 MAP (Table 5).

Table 5: Main effects of tillage and sucker size and their interactions on Leaf area of smooth cayenne pineapple

	Leaf area (cm^2)				
Treatments	**3**	**6**	**9**	**12**	**15**
			Months After Planting		
Tillage system					
T1	82.28^a	99.90^a	101.08^a	102.68^a	103.43^a
T2	78.92^a	96.37^a	98.43^a	100.97^a	102.64^a
Sucker size					
S1	57.71^c	67.72^c	72.45^c	80.39^c	82.92^c
S2	76.84^b	90.76^b	93.16^b	95.69^b	96.43^b
S3	107.26^a	122.27^a	127.81^a	128.39^a	136.26^a
TS X SS	Ns	Ns	Ns	Ns	Ns

Means with the same superscripts along the column are not significantly different at P < 0.05
using Duncan's Multiple Range Test (DMRT).
T1 = Conventional tillage; T2 = Reduced tillage;
S1 = Small sucker; S2 = Medium sucker; S3 = Big sucker

Effect of tillage system and sucker size on the yield and yield attributes of smooth cayenne pineapple

Fruit length (17.20 cm), fruit diameter (10.12 cm), fruit weight (1.55 kg), apple weight (1.27 kg) and fruit yield (32.98 ton/ha) obtained under conventional tillage system were higher but not significantly different from the fruit length (16.63 cm), fruit diameter (10.12 cm), fruit weight (1.47 kg), apple weight (1.15 kg) Table 6 and fruit yield (30.61 ton/ha) Figure 5a, recorded under reduced tillage system. Fruit and fruit yield characteristics of pineapple were influenced by sucker size (Table 6 and Figure 5b). There were significant differences among fruit and fruit yield parameters obtained from different sucker size (Table 6). average fruit length (20.39 cm), fruit diameter (11.36 cm), fruit weight (2.28 kg), apple weight (1.98 kg) and fruit yield (53.66 tons/ha) of plants from big suckers were maximum and significantly different than those from the medium sucker. Fruit length (14.75 cm), fruit diameter (9.18 cm), fruit weight (0.84 kg), apple weight (0.56 kg) and fruit yield (10.15 tons/ha) obtained from small sucker were the least (Table 6).

Table 6: Main effects of Tillage system and sucker size on fruit and fruit yield parameters of pineapple

Treatment	Fruit Length (cm)	Fruit Diameter	Fruit Weight (kg)	Apple Weight (kg)	Crown Weight (kg)	Crown: Fruit weight (kg)	Fruit Yield (kg/Plot)
Tillage system							
T1	17.20[a]	10.12[a]	1.55[a]	1.27[a]	0.28[b]	0.22[b]	59.17[a]
T2	16.63[a]	10.12[a]	1.47[a]	1.15[a]	0.32[a]	0.25[a]	55.11[a]
Sucker size							
S1	14.75[b]	9.18[c]	0.84[c]	0.56[c]	0.27[b]	0.33[a]	21.08[c]
S2	15.61[b]	9.82[b]	1.40[b]	1.09[b]	0.32[a]	0.23[b]	53.76[b]
S3	20.39[a]	11.36[a]	2.28[a]	1.98[a]	0.30[a]	0.14[c]	96.58[a]
TS X SS	Ns	Ns	Ns	Ns	Ns	Ns	Ns

Means with the same superscripts along the column are not significantly different at $P < 0.05$ using Duncan's Multiple Range Test (DMRT).

T1 = Conventional tillage T2 = Reduced tillage

S1 = Small sucker S2 = Medium sucker S3 = Big sucker

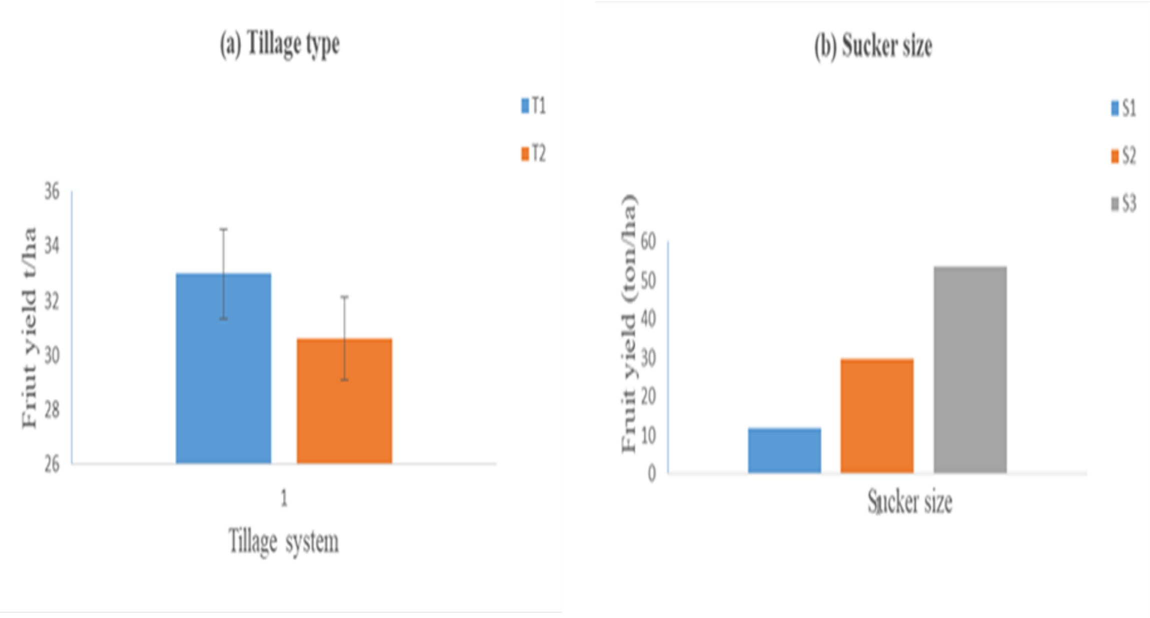

Fig. 5: Main effects of (a) Tillage system and (b) Sucker size on fruit yield (ton/ha) of pineapple

DISCUSSION

Growth parameters

This study investigated the influence of tillage system and sucker size on growth and fruit yield of smooth cayenne pineapple variety. The results of the study revealed that tillage system and sucker size significantly influenced pineapple growth. It was shown from this study that tillage system had a significant positive effect on plant heights of pineapple which was an expression of vegetative growth and development. Compared with reduced tillage, convectional tillage led to improved development of plants heights. This may likely be due to intensive soil disturbance that broke up compacted soil layers, creating a loose and porous structure that enhanced root development and nutrient uptake (Hanafi *et al.*, 2010; Nicou *et al.*, 1993). This is in line with the report of Kayode and Adenileuyi (2004) who observed short maize plant in no tillage plots in comparison with that in the tilled plots. Alkins and Afuaka (2010) also reported taller cowpea plants in tilled plots. It was also apparent that variation in sucker size had a significant positive positive effect on the heights of pineapple plants. The differences observed in this study could be attributed probably to the amounts of nutrient reserves in each size of the sucker as big suckers performed better than the medium and small sized suckers. This result is similar to the findings of Jeyabaskaran *et al.*, (2001) who reported that sucker or corm of banana is a nutrient reserve which could support growth for some time prior to foliage development.

The number of leaves produced by a plant is directly proportional to the amount of photosynthesis generated. Average number of leaves in this study varied significantly with tillage practices. Higher number of leaves was recorded from conventional tillage plots compared to reduced tillage plots. It was also shown from this study that big suckers performed better in terms of number of leaves than the medium and small sized suckers. This result is consistent with Denton (2000) who reported that large sucker size of pineapple produced higher number of leaves compared to small weight propagules. The effect of tillage system on D-leaf length of pineapple differed significantly. The present study established that reduced tillage had the longest D-leaf length while conventional tillage recorded the least. However, from 6 to 15 months after planting, effect of tillage system on D-leaf length of pineapple was not significant. The length of D-leaf obtained in this study increased significantly as plant aged, irrespective of the type of suckers. This observation is consistent with the report of Singh and Yadav (1980) who studied quick multiplication of pineapple and found that the rate at which leaves grow after planting increases regularly with the propagate type and size of the plant. Plants from big suckers in this study produced longest D-leaf length while small sucker size ones had the shortest D-leaf length. This may probably be due to the earliness in growth which resulted from large food reserve in the big suckers. This study pointed out that variation in sucker size had a significant effect on the D-leaf widths of pineapple plants. Big sucker performance was best compared to the medium and small sized sucker. This could probably be due to the amounts of nutrient reserves in each class of the sucker. As shown by the present study, there was no significant difference between means for leaf area of pineapple as influenced by tillage system throughout the period of observation. Conventional tillage system gave largest leaf area compared to reduced tillage practices. Leaf area from big suckers was larger compared those obtained from medium and small suckers, the bigger the sucker size, the larger the leaf area of the plant. This may be attributed to the ability of the plant to utilize the mineral composition of the sucker in producing healthy plants early enough for better establishment of the plant.

Fruit and fruit yield parameters

Tillage system and sucker size significantly influenced some of the pineapple fruit yield and yield attributes. The study found no significant effect of tillage system on fruit length and diameter, average fruit and apple weights as well as fruit yield. This is in line with the report of Armengot *et al*., (2015) who observed no significant difference in yields of wheat established under reduced and conventional tillage in the arable lands. The values of these parameters under conventional tillage were higher compared to what was obtained under reduced tillage system.

Investigation on the effect of sucker size on fruit yield and yield attributes revealed that the differences in fruit yield and yield parameters observed in this study could be as a result of the amount of nutrients reserved in each class of the planting material. Big suckers produced optimal yield, followed by the medium while small suckers produced least yield value. This is in line with the findings of Chang-Chingchyn (1998) who reported that average fruit weight of "Tainung No 4" pineapple harvested from lightest weight of planting materials was lower than those from heaviest planting materials.

CONCLUSION

Conventional tillage system gave maximum plant heights, numbers of leaves, D-leaf widths, leaf area and higher pineapple yield compared to reduce tillage system. Big sucker (401g above) was also superior in terms of pineapple plant height, number of leaves, D-leaf length, D-leaf width, leaf area and fruit yield, followed by the medium sucker while small sucker was the least. Therefore, conventional tillage system and big sucker (401g above) is the best tillage practices and appropriate size of sucker for good growth and optimum yield of pineapple.

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